The Cost of Poor Housing in Ireland

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Executive Summary

This report was commissioned by the BRE Trust as part of its contribution to a wider 'scoping study to identify the common hazards in Irish housing affecting older people and their health', to be delivered by a consortium of academics, professionals and policy makers. The consortium is: TrinityHaus, Trinity College Dublin; Age Friendly Ireland; The Housing Agency; Meath County Council; BRE; Department of Housing, Local Government and Heritage; Department of Health; the National Disability Authority.

This report is intended to inform a literature review on the impact of housing on the health of older people in Ireland, by producing our best estimate of poor housing in Ireland and its impact on health.

The report concludes that:

The type and composition of the housing stock of Ireland is similar to that of Northern Ireland. As such, it is likely that housing conditions in Ireland will follow a similar pattern to those in Northern Ireland, which has a national survey to monitor these – the Northern Ireland House Condition Survey (NIHCS).

A model developed by BRE to extrapolate survey results from the 2016 NIHCS to Ireland suggests that around 160,000 (8%) of Irish homes are likely to present a serious health and safety risk to their occupants (and visitors). This compares with 9% in Northern Ireland, 11% in England, and 18% in Wales.

Ireland's apparent better conditions are largely driven by the age of its housing stock, which is one of the newest in Europe.

The most common severe home hazards likely to be found in Ireland are those relating to cold and home accidents – particularly falls. These are, generally, not expensive to rectify compared with the long-term cost to the health services and society if they are ignored.

It is estimated that the total health impact to society of leaving these hazards un-rectified is costing Ireland some £1.25 billion Euros a year to the health and care services, plus the distress and lost opportunities to the victims and their families. This figure is similar to an estimate produced as part of a pan-European study undertaken in 2016, using self-reported data on housing conditions from Irish households.

Improving poor housing has multiple benefits, beyond those that just relate to the health of their occupants. These include reduced energy costs and carbon emissions, higher residual asset values, and local job creation opportunities. Everybody wins!

It is recognised that real housing conditions in Ireland may not follow the pattern predicted from Northern Ireland in this scoping study. Ireland specific problems may have been overlooked, or over-played. But, in lieu of a current bespoke Irish national housing survey, it represents a useful starting point for discussion, validation and further development.

The findings of this study might be used towards the development of enhanced information and simple guidance for older people in relation to the safety of their homes (covering issues such as damp/mould, fall hazards, heating costs and temperatures, etc) and developing resources that can be used to support Irish local authorities and landlords in their preparation and maintenance of housing for older people.

Table of Contents

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Introduction

This report was commissioned by the BRE Trust as part of its contribution to a wider 'scoping study to identify the common hazards in Irish housing affecting older people and their health', to be delivered by a consortium of academics, professionals, and potential end users. The consortium is: TrinityHaus, Trinity College Dublin; Age Friendly Ireland; The Housing Agency; Meath County Council; BRE; Department of Housing, Local Government and Heritage; Department of Health; the National Disability Authority.

This report is intended to inform a literature review on the impact of housing on the health of older people in Ireland, by producing our best estimates of poor housing in Ireland and its impact on health.

The overall aims of the scoping study, which this report will feed into at an early stage, are to:

"explore the relationship between typical hazards in the home and the health and well-being of older people in Ireland. It will include desktop research of housing conditions and home hazards in the context of older people's housing and identify the key risks for older people in the home. This research is proposed in the context of government policy that aims to support older people to remain living with a good quality of life within their own community. It will identify a list of key hazards with a view to developing early guidance and resources that can be used to assess the safety of older people's homes. The study will conduct a literature review of research in this area and examine any suitable tools in use elsewhere which could be modified for an Irish context".

Methodology for this study:

1. Review relevant international research on the relationship between housing and health, and the tools that have been developed to measure the impact of this.
2. Review information on the housing stock of Ireland and compare this with other nations.
3. Review the results of the most recent Northern Ireland House Condition Survey (2016) and consider what lessons might be learned for Ireland.
4. Develop a method for estimating housing conditions in Ireland.
5. Review the costs of remedial action for poor condition homes.
6. Quantify the impact of poor housing conditions in Ireland on health.
7. Review uses of this information.
8. Make recommendations for the use of these scoping study findings.

1. Measuring the relationship between housing and health

There is a long-established and recognised association between poor housing and poor health. Many studies have investigated this, however, because of the number of intervening variables, it is difficult to demonstrate clear and measurable 'cause/effect' relationships. Nevertheless, there is a growing body of evidence linking adverse health effects with poor housing. These conditions include: the effects of living in a cold home; home accidents; dampness; unhygienic conditions; noise; insecurity; overcrowding; and fire safety.

Housing standards reflect this relationship and strive to improve health by demanding better quality new housing and enforcing improvements on sub-standard existing housing. Ireland has strict Building Regulations, which aim to ensure that all future housing is built to a good quality, while the 'Fitness Standard' is applied by environmental health officers in their enforcement work on the housing stock, particularly in the private rented sector. A similar standard is also applied in Northern Ireland, while the related 'Tolerable Standard' applies in Scotland [1].

Since 2006, England and Wales have used the Housing Health and Safety Rating System (HHSRS) as the bottom-line health and safety standard [2], replacing the Fitness Standard that is still applied in Northern Ireland [3]. The HHSRS is used informally in Northern Ireland and has been adapted for use in the USA [4]. WHO Europe provides guidance on 'the environmental burden of disease associated with inadequate housing', which draws strongly on the research that underpins the HHSRS [5].

The Housing Health and Safety Rating System (HHSRS)

The HHSRS is a means of identifying defects in dwellings and evaluating the potential effect of any defects on the health and safety of occupants, visitors, neighbours and passers-by. The system provides a means of rating the seriousness of any hazard, so that it is possible to differentiate between minor hazards and those where there is an immediate threat of major harm, or even death. The emphasis is placed on the potential effect of any defects on the health and safety of people, particularly those who might be regarded as 'vulnerable' – typically the elderly. There are 29 potential HHSRS hazards identified, which fall into four groups (Table 1.1).

Table 1.1: The 29 HHSRS hazards

Physiological Requirements

Damp and mould growth etc.
Excessive cold
Excessive heat
Asbestos etc.
Biocides
CO and fuel combustion productions
Lead
Radiation
Un-combusted fuel gas
Volatile organic compounds

Psychological Requirements

Crowding and Space
Entry by intruders
Lighting
Noise

Protection Against Infection

Domestic hygiene, pests and refuse
Food safety
Personal hygiene, sanitation and drainage
Water supply

Protection Against Accidents

Falls associated with baths etc.
Falling on level surfaces
Falling on stairs etc.
Falling between levels
Electrical hazards
Fire
Flames, hot surfaces etc.
Collision and entrapment
Explosions
Position and operability of amenities etc.
Structural collapse and falling elements

The health risks associated with each of the above 29 housing deficiencies are summarised in Table 1.2.

Table 1.2: Housing factors and health problems linked to the 29 HHSRS hazards

Hazard	Key housing factors contributing to hazard	Main health problems linked to hazard
Dampness and mould growth	Heating and thermal insulation Ventilation Damp proofing Disrepair allowing water penetration Exposed water tank and pipework	Respiratory disease Allergic symptoms (asthma, rhinitis) Infections (mainly fungal) Nausea and diarrhoea Depression and anxiety
Excess cold	Energy efficiency (heating, thermal insulation, fuel) Dampness Ventilation	Cardiovascular conditions Respiratory diseases Rheumatoid arthritis Impaired thermo-regulation (hypothermia)
Excess heat	Thermal insulation Heating controls Area and orientation of glazing	Cardiovascular conditions Genitourinary disease Dehydration
Asbestos	Presence of asbestos- accessible position or unsealed	Respiratory problems, pleural disease, lung cancer, mesothelioma, dermatitis

	Disrepair to asbestos-based materials	
Biocides	Use/misuse of chemicals to treat timber and mould growth	Varies depending on the chemicals used
Carbon monoxide and fuel combustion products	Disrepair to flueless appliances (including cookers) Inadequate ventilation or flues Disrepair to flues or ventilation	Headaches and dizziness to unconsciousness and death Damage to nervous system – short term memory loss Respiratory problems Aggravation of asthma
Lead	Lead water pipes Lead paint	IQ deficiency Lead poisoning
Radon	Design and repair of floors in affected area	Lung cancer Other cancers (leukaemia, skin, gastro-intestinal)
Un-combusted fuel gas	Condition, design and siting of gas supplies and appliances	Asphyxiation
Volatile organic compounds	VOC emitting materials or treatments used Inadequate ventilation	Allergic reactions involving eyes, nose, skin and respiratory tract Headaches, nausea, dizziness and drowsiness
Crowding and space	Level of occupancy Size of kitchen in relation to occupancy and use Sharing of amenities	Psychological distress Reduced concentration Reduced tolerance Poor hygiene Increased risk of accidents Spread of contagious disease
Entry by intruders	Defensible space External lighting Natural surveillance Locks to windows and doors Condition of windows and doors Concierge or entry-phone for flats	Emotional stress (from fear of crime or as a result of burglary) Injuries from aggravated burglary
Lighting	Size, shape and position of windows Obstruction of windows Adequate artificial lighting and controls	Depression and psychological conditions Eye strain
Noise	Situation of dwelling Sound insulation Repair of windows and external doors Noisy/badly sited equipment or facilities	Psychological stress Sleep disorders Anxiety and irritability Cardiovascular conditions

Domestic hygiene, pests and refuse	Repair/design allowing ingress of pests Refuse space (internal and external) Refuse chutes (flats)	Gastro-intestinal disease Asthma and allergic rhinitis Emotional distress Depression and anxiety
Food safety	Repair/design of sinks, worktops, cooking provision, food storage facilities Ratio of facilities to occupants Sharing of facilities	Food poisoning (mild to fatal)
Personal hygiene, sanitation and drainage	Ratio of facilities to occupants Adequate supply of hot and cold water Disrepair to facilities Drainage Sharing of facilities	Gastro-intestinal illness (mild to fatal) Anxiety and depression
Water supply for domestic purposes	Quality of water supply Water tanks protected against contamination	Gastro-intestinal illness (mild to fatal) Legionnaires disease
Falls associated with baths and showers	Design and condition of bath/shower rooms Size and layout of bath/shower rooms Slippery flooring Poor lighting/glare	Physical injury (cuts, swellings, fractures) Deterioration in general health for elderly
Falls on level surfaces	Trip steps or steep slopes Uneven surfaces Disrepair to surfaces Inadequate drainage of surface water Poor lighting/glare	Physical injury (cuts, swellings, fractures) Deterioration in general health for elderly
Falls associated with stairs and steps	Design and repair of stairs/steps Provision and condition of guard rails, handrails Poor lighting/glare Size/design of landings Projections to stairs or foot	Physical injury (cuts, swellings, fractures) mild to fatal Deterioration in general health for elderly
Falls between levels	Design and state of repair of windows Design and state of repair of balconies Height above ground Hardness/projections on ground	Physical injury (cuts, swellings, fractures) mild to fatal Deterioration in general health for elderly
Electrical hazards	Age/disrepair of electrical installation Number and location of socket outlets	Electric shock (mild to fatal)

Fire	Location of heater/cooker Adequacy and repair of heating State of repair of electrical installation Number and location of socket outlets Fire protection to escape routes Detectors/alarms Fire-fighting equipment	Inhalation of smoke/fumes (mild to fatal) Burns (mild to fatal)
Hot surfaces and materials	Unprotected hot surfaces or flames Temperature of hot water to taps Poor layout or inadequate space to kitchen	Burns and scalds Psychological distress
Collision and entrapment	Design, location and disrepair to doors, windows Unprotected gaps in banisters Low headroom, beams or ceilings	Injuries – cuts, piercing, trapping, bruising, crushing
Explosions	Design and disrepair of gas supply and appliances Design and repair of hot water systems Inadequate or defective LPG storage	Injuries – crushing, bruising, fractures, death
Position and operability of amenities (ergonomics)	Space and layout of kitchen amenities Space and layout of washing and WC amenities Design/repair of taps, windows and doors	Injuries – strains, sprains, bruises, fractures
Structural collapse and falling elements	Structural movement or cracks Disrepair to external fabric (especially chimneys and cladding) Disrepair to internal fabric (especially ceilings, floors, stairs)	Injuries (minor to fatal)

How the HHSRS works

The HHSRS scoring procedure uses a formula to generate a numerical score for each of the hazards identified at a property. The higher the score, the greater is the severity of the hazard. Potential hazards are assessed in relation to the most vulnerable class of person who might typically occupy or visit the dwelling. For example, for falls on stairs the vulnerable group is the elderly (60 years or over) while for falls between levels it is children under 5 years old.

The hazard score formula requires an inspector to make two judgements:

- The likelihood of an occurrence, which could result in a harm to a vulnerable person over the following 12-month period (the likelihood is given as a ratio – e.g. 1 in 10, 1 in 500).
- The likely health outcome, or harms, that would result from the occurrence.

From any occurrence there will be a most likely outcome, and other possible ones which may be more, or less severe. For example, a fall from a second-floor window could result in a 60% chance of severe concussion, but there may also be a 30% chance of a more serious injury, and a 10% chance of something less serious. The four classes of harms and their associated weightings are listed in Table 1.3.

Table 1.3: Classes of HHSRS harms

Class	Examples	Weightings
Class 1	Death, permanent paralysis below the neck, malignant lung tumour, regular severe pneumonia, permanent loss of consciousness, 80% burn injuries	10,000
Class 2	Chronic confusion, mild strokes, regular severe fever, loss of hand or foot, serious fractures, very serious burns, loss of consciousness for days	1,000
Class 3	Chronic severe stress, mild heart attack, regular and persistent dermatitis, malignant but treatable skin cancer, loss of a finger, fractured skull, severe concussion, serious puncture wounds to head or body, severe burns to hands, serious strain or sprain injuries, regular and severe migraine	300
Class 4	Occasional severe discomfort, chronic or regular skin irritation, benign tumours, occasional mild pneumonia, a broken finger, sprained hip, slight concussion, moderate cuts to face or body, severe bruising to body, 10% burns, regular serious coughs and colds.	10

From the judgements made by a trained inspector, a hazard score can be generated for each hazard as illustrated in Table 1.4, using the example of falling between levels.

Table 1.4: Example hazard score for falls between levels

Class	Weighting		Likelihood (1 in)		Spread of harm		Hazard score
Class 1	10,000	÷	100	x	0	=	0
Class 2	1,000	÷	100	x	30	=	300
Class 3	300	÷	100	x	60	=	180
Class 4	10	÷	100	x	10	=	1
All classes							481

Using this approach, hazard scores can range from 1 (very safe) to over 5,000 (very dangerous). ***A score of 1,000 or more is considered to be a Category 1 hazard*** and it is this we have taken to be our definition of 'poor housing', below.

Examples of HHSRS Category 1 hazards

Falls hazards

The design and condition of homes and their accessways has a major impact on the likelihood of a fall occurring and the seriousness of the outcome. This is particularly the case when the home is lived in by a vulnerable occupant, even more-so when the occupant is elderly and lives alone.

There are some 230,000 treated injuries per year in England [2] associated with home falls on stairs and steps, some 500 of these being fatal. If a fall does occur leading to hospital treatment, the first-year NHS treatment costs can vary from £100 for a cut or bruise to £90,000 for paralysis.

If, by nullifying a Category 1 HHSHS fall hazard, just one devastating injury was prevented each year, the costs savings to the NHS would reach over £1 million after 10 years. To this would be added the cost of the emergency services, continued aftercare, loss of earnings, wellbeing and social capital.

In this home the accessway to the rear garden and garage is down a set of steep steps. These steps are in disrepair, slope dangerously and are slippery. The handrail is loose. To make matters worse, the rain-water drainage discharges directly onto the steps which means that they are always wet. Following a very cold night they would have ice on them. As this is a regularly used accessway this is deemed to be a Category 1 hazard to a vulnerable elderly person.

If an elderly person was to have a fall on the steps the outcome would likely be severe. In the worst-case scenario, this could lead to paralysis requiring constant care.

Cold homes

Older homes are difficult to keep warm, particularly if they are poorly insulated and do not have gas central heating. Rural homes typically have oil-fired systems which are expensive to use, often resulting in the household living in ‘fuel deprivation’ or ‘fuel poverty’ (see Chapter 3). Elderly people are particularly affected by the effects of living in a cold home and often have limited resources to pay for fuel.

Some, typically rural, homes still burn solid fuel. These fires are expensive to use, particularly when supplemented by electric heaters. Such 'cold homes' may have a severe impact on both physical and mental health if the household cannot afford the heating costs; the outcome could be respiratory or circulatory problems and, in extreme cases, hypothermia. People will not be able to live comfortably or perform tasks efficiently in a cold home, and they will be less likely to invite friends to visit.

Where housing is off the gas grid, expensive oil is typically used for heating

Damp

Dampness is a major problem. It can lead to all sorts of health problems, including asthma, discomfort and poor mental health. Older homes are more likely to have defects to their roof coverings, rainwater drainage, damp proof courses, render and brickwork. High rainfall is also a significant factor in aggravating damp problems.

General disrepair can let in water. In this case, a defective damp proof course and a broken downpipe are the sources of Category 1 dampness.

Measuring poor housing

There is no standard definition of 'poor housing'. For the purpose of this research, it has been defined as ***a dwelling that has one or more Category 1 HHSRS hazards***. Unlike other measures of poor housing this focuses on health outcomes and its development was informed by a large body of research and statistics on the links between housing and health. It also has the advantage that it is measured through the UK national housing surveys (except Scotland) and so can be measured at both detailed and national level.

The HHSRS is used in England and Wales by environmental health and housing inspectors as part of their enforcement activity, in particular applied to the private rented sector. It is also used in the NIHCS as the measure of unhealthy and unsafe housing.

The NIHCS is undertaken around every 5 years on a random sample of around 2,000 homes. Some 20 surveyors took part in the last survey in 2016. The surveyors use a standard survey form and data entry system, which is designed by BRE. The Northern Ireland surveyors are specially trained in the HHSRS and the results are reported in the main report [3].

2. The housing stock of Ireland

Ireland does not have a current specific housing survey like the UK nations, so it is difficult to find fully comparable information on the condition of its housing stock. The last national housing survey was undertaken in 2001/02 [8], but this was a household questionnaire rather than a technical assessment made by a trained inspector. Irish national house condition surveys were undertaken in 1991 and 1981 but these are now too old to be of more than historic interest. The 2016 Irish Census is helpful for describing the housing stock (containing useful information on age, type, tenure, rurality, heating), but there is no assessment of conditions. The EU collects information on the housing of Ireland, in particular through the European Union Statistics on Income and Living Conditions (EU SILC) and European Quality of Life (EQLS) surveys, but the housing condition measures used in these are, again, self-reported.

Table 2.1 has been compiled from the 2016 Census of Ireland and EU statistics, which use data at the same point in time as the latest Northern Ireland and United Kingdom surveys, for comparison.

Table 2.1: A comparison between the housing of Ireland, Northern Ireland and the UK

	Ireland %	**N. Ireland %**	**UK % *(incl. NI)***
Construction date			
Pre 1919	9	11	21
1919-1945	7	9	15
1946-1980	29	40	39
1981-2016	55	40	25
Dwelling type			
Terraced house	17	28	27
Semi-detached house	28	23	25
Detached/bungalow	43	42	27
Flat	12	7	21
Tenure			
Owner-occupied	68	65	63
Private rented	22	19	19

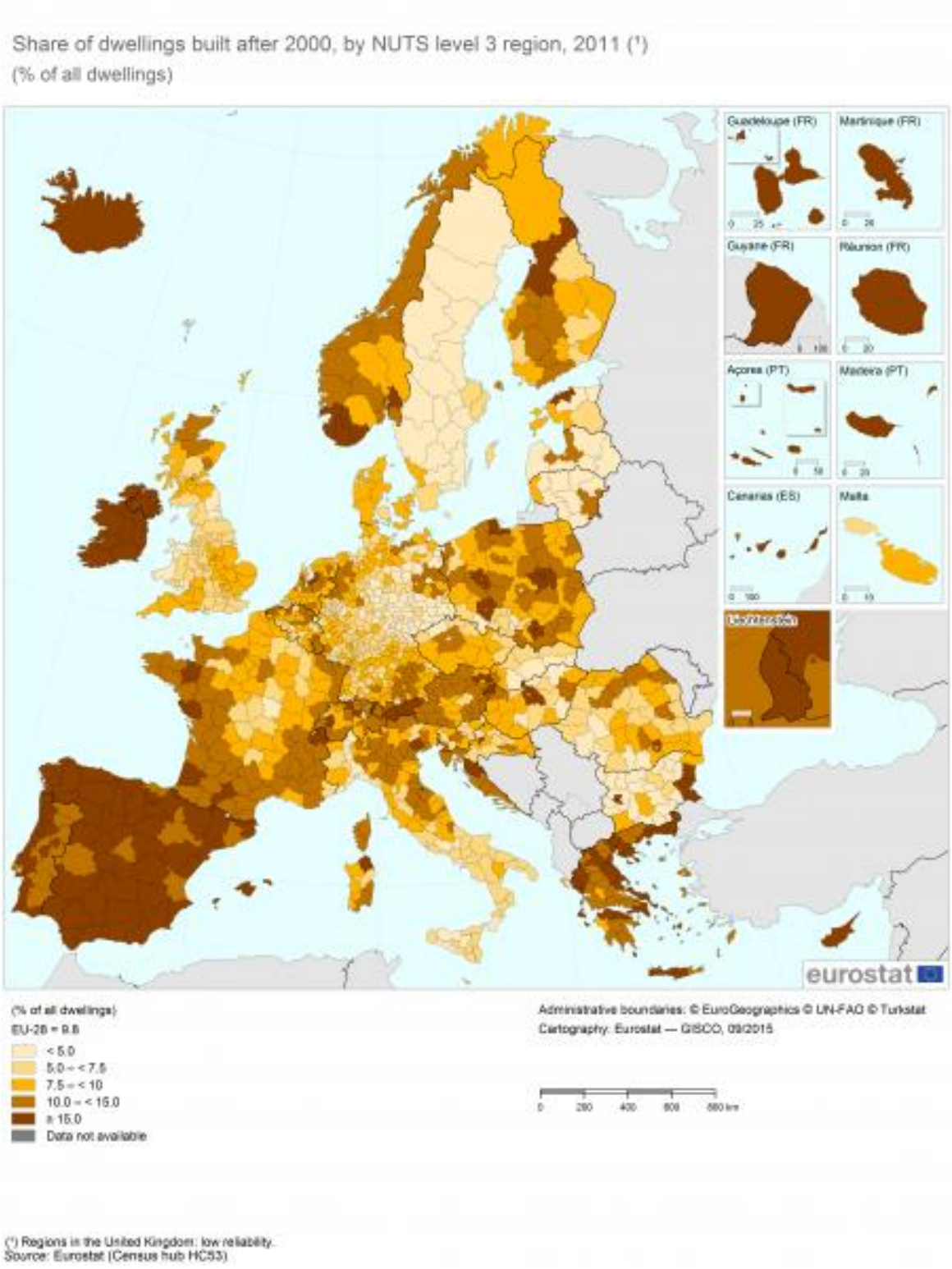
Social rented	10	16	18
Heating			
Gas central heating	34	24	83
Oil central heating	41	68	6
Other heating*	25	8	11
Urban/rural			
Urban	65	64	81
Rural	35	36	19
Total %	100	100	100
Total dwellings	2,003,000	780,000	28,536,000

**Ireland percentages from the 2016 Census.*
NI/UK figures from 'The Housing Stock of the United Kingdom', 2017.
Other heating includes electric heaters, peat/turf, coal, wood.
Ireland dwelling stock total from: The state of housing in the EU [17]

Table 2.1 illustrates the considerable similarity between the housing stocks of Ireland and Northern Ireland and, to a lesser extent, the UK as a whole. This is not surprising considering its' shared history and similar building practices and preferences.

In comparison with Europe, the housing stock of Ireland, its ownership and tenure is most similar to that of the UK [7]. The most noticeable difference is the proportion of housing in Ireland that has been built since 1980, compared with that in the UK (Figure 2.1). In fact, Ireland has one of the most modern housing stocks in Europe. The pre 2008 housing boom of Ireland has been well documented, as has the concern over the quality of some new homes. Nevertheless, most of the house types in Ireland are similar to those of Northern Ireland and the UK and are likely to share many of the same problems. Figure 2.2 shows a small selection of house types from Ireland, which could be found either side of the border, or indeed in Great Britain.

Figure 2.1: Homes built since 2000 in the European Union (+Norway, Iceland, Switzerland)



(¹) Regions in the United Kingdom: low reliability.
Source: Eurostat (Census hub HC53)

Figure 2.2: A variety of house types and conditions in Ireland (see Appendix 1 for locations)

Estimating the level of poor housing in Ireland

The age, type and location of the housing of a nation helps to define how likely it is to contain hazards, which will have an impact on the health and safety of occupants and visitors.

Ireland does not have the HHSRS, nor does it have a current national housing survey in which an independent assessment by a trained surveyor is undertaken of a representative sample of the housing stock, so ….

The aim of this research to produce a model which will estimate the level of poor housing, based on appropriate data from Ireland and factors taken from similar housing in Northern Ireland.

Previous research has shown that the housing of different countries is exposed to the same (29) HHSRS hazards, but in different quantities and combinations depending on the age, type, tenure, design of the dwelling and the topography and climate. This has been noted by the USA [4] and New Zealand [9], which have used the body of science that underpins the HHSRS to support their own housing improvement programmes.

Based on what we know, it is reasonable to hypothesise that the housing of Ireland will follow a similar pattern to that of Northern Ireland in the way that it impacts on health, in particular that of vulnerable occupants. For example, an older household living in a poorly insulated, oil heated, pre-1919 farmhouse in Monaghan will be subjected to the same risks from living in a cold home as an older household living in a similar property in Armagh. By the same account, a Georgian house in Dublin is likely to suffer from similar problems to a Georgian house in Belfast.

3. Results from the 2016 Northern Ireland House Condition Survey

The 2016 NIHCS estimates that 9% (70,000) dwellings had at least one HHSRS Category 1 hazard and, thus, by our definition are considered to be ‘poor housing’. This compares with 2% that fail the Fitness Standard [3]. Among dwellings with a Category 1 hazard, 74% had one such hazard and a further 11% had two hazards. At the other end of the scale some 6% of these dwellings had between 6 and 13 hazards, the vast majority of these being vacant homes.

The three most common hazards were falls on stairs, falls on the level and excess cold (Table 3.1). Some of the hazards are extremely rare in their extreme (Category 1) form. This does not mean that the hazard does not exist, rather that its long-term impact on health is likely to be small. None of the dwellings surveyed were reported to have, for example, Category 1 hazards for falls associated with baths. This is likely to be a result of the small sample size for the survey rather than an indication that no such hazards exist.

Table 3.1: Number and percentage of homes with Category 1 hazards in Northern Ireland 2016*

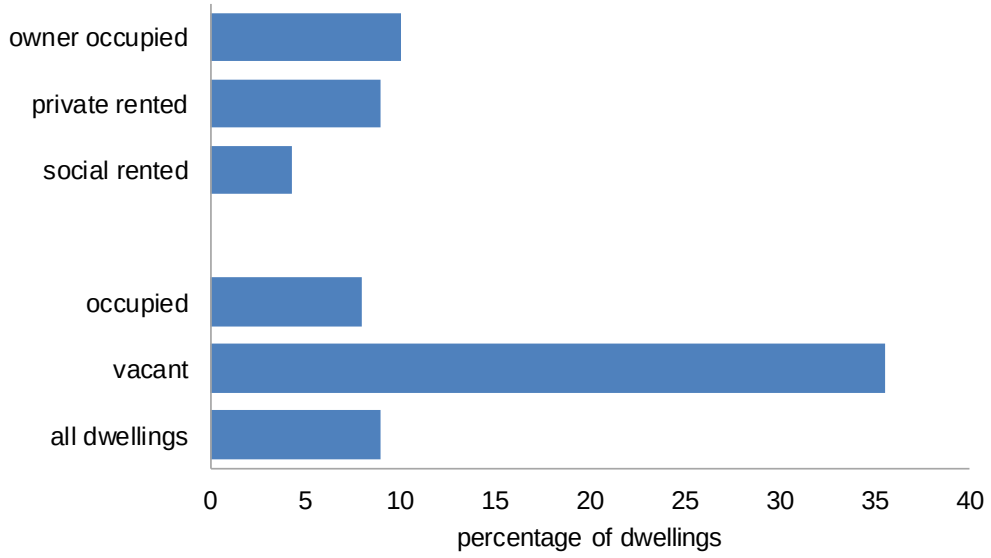
	Number of dwellings	Percentage of dwellings
Falls on stairs	25,746	3.3
Falls on level surfaces	16,491	2.1
Excess cold	16,029	2.1
Falls between levels	8,258	1.1
Personal hygiene	8,125	1
Food safety	7,091	0.9
Radon	5,825	0.7
Position and operation of amenities	4,477	0.6
Entry by intruders	4,437	0.6
Water supply	3,734	0.5
Fire	3,535	0.5
Domestic hygiene	3,441	0.4
Lead	3,422	0.4
Electrical safety	2,000	0.3
Lighting	1,795	0.2
Damp and mould	1,559	0.2
Carbon monoxide	1,216	0.2
Structural collapse	489	0.1
Flames and hot surfaces	350	0.0
Explosions	280	0.0
Uncombusted fuel gas	280	0.0
Falls associated with baths#	0	0
Collision and entrapment#	0	0
Overcrowding#	0	0
Excess heat#	0	0
Noise#	0	0
Any Category 1 hazards	69,878	9.0

** individual items do not sum to the total because some homes have more than one Category 1 hazard.*
 # although there were no cases with these hazards in the survey sample, this does not mean that there are no dwellings with any of these hazards.

Category 1 hazards and tenure

There was a far higher proportion of Category 1 hazards among owner occupied (10%) and private rented homes (9%) compared with public sector homes (4%). Over a third (36%) of vacant homes had a Category 1 hazard compared with 8% of occupied homes, Figure 3.1.

Figure 3.1: Percentage of dwellings with any Category 1 hazard by tenure and type of occupation, Northern Ireland 2016

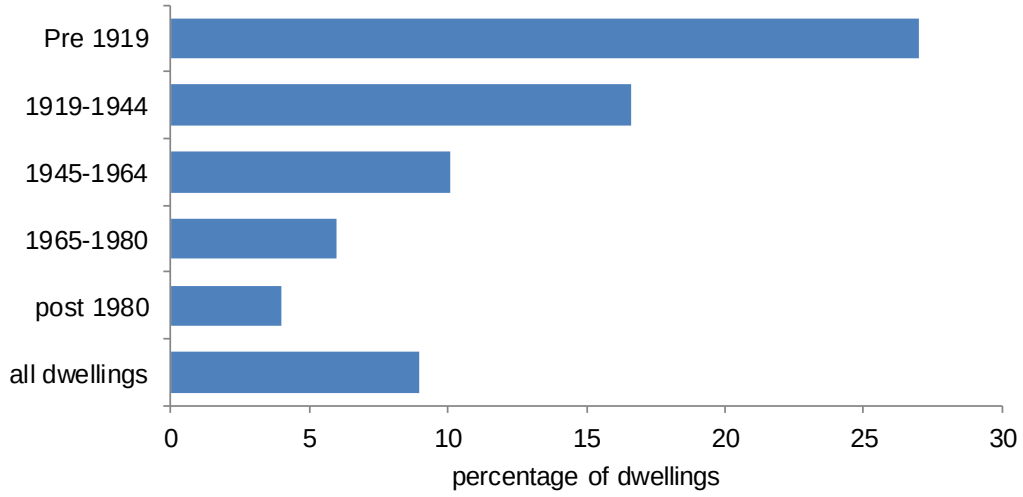


Base: all dwellings

Category 1 hazards and dwelling age

Figure 3.2 shows the prevalence of Category 1 hazards among different ages of dwellings. Not surprisingly the oldest dwellings built before 1919 had the highest proportion of Category 1 hazards (27%).

Figure 3.2: Percentage of dwellings with any Category 1 hazard by dwelling age, Northern Ireland 2016

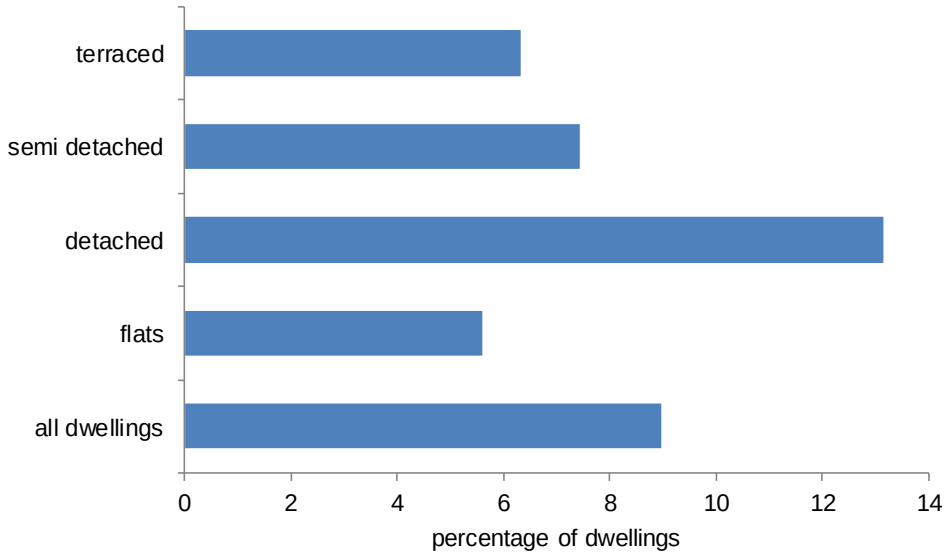


Base: all dwellings

Category 1 hazards and dwelling type

Figure 3.3 shows the proportion of these hazards among different types of dwellings. Detached homes had the highest prevalence of Category 1 hazards (13%). These were typically older homes in rural areas with heating, insulation and disrepair issues.

Figure 3.3: Percentage of dwellings with any Category 1 hazard by dwelling type, Northern Ireland 2016



Base: all dwellings

Urban/rural

Some 13% of rural dwellings in Northern Ireland contain at least one Category 1 HHSRS hazard compared with 7% of urban dwellings. Rural dwellings are more likely to be old, poorly insulated and use oil of solid fuel for heating purposes.

Category 1 hazards and household types

Older households (those with a head of household over 60) represent around 40% of all households in Northern Ireland, Table 3.2. A significant proportion of other homes will contain older or vulnerable household members.

Table 3.2: Homes with Category 1 hazard by type of household, Northern Ireland 2016

Age of head of household	Number	% dwellings	Number with at least one Cat 1 HHSRS	% with at least one Cat 1 HHSRS	% with HHSRS Cat 1 fall hazard	% with HHSRS Cat 1 cold hazard	% with HHSRS Cat 1 other hazard
18-24	16,063	2.1	1,035	6.4	6.4	0.0	0.0
25-39	157,001	20.1	9,490	6.0	3.9	0.4	2.5
40-59	260,064	33.3	20,263	7.8	5.8	1.0	1.8
60-74	203,517	26.1	17,393	8.5	4.8	0.7	3.7
75 +	105,828	13.6	11,340	10.7	5.3	4.1	2.8
NA/vacant	37,528	4.8	10,357				
Total	780,000	100	69,878	9.0	5.3	2.1	3.4

Older households are more likely to live in a home with a Category 1 HHSRS hazard than younger households. This is particularly the case for cold hazards, which represent a significant risk for this age group. Households with a head 75 or over are twice as likely to live in a cold home than the average household. They are also the most likely to suffer from the consequences of living in a cold home.

Fuel poverty

In Northern Ireland, ‘fuel poverty’ occurs when a household needs to spend more than 10% of their income on energy in order to maintain an acceptable level of heat throughout their home’. In 2016, some 22% of Northern Ireland households were in Fuel Poverty [3]. Over half of the homes built before 1919 contained a household in fuel poverty, and 38% of older households were in fuel poverty.

Ireland has no set definition of fuel poverty, but Irish research has generally used a subjective measure, assessing whether people feel they are unable to afford to adequately heat their home, referred to a ‘fuel deprivation’.

The latest release from Eurostat shows that Ireland had the highest recent increase in gas prices, and the fifth highest increase in electricity prices in the EU. According to the EU SILC, the proportion of the population that went without heating due to lack of money rose from 5.8% in 2006 to 15.7% in 2013-14, before decreasing year on year to 2017. In 2017 the proportion of the population experiencing this form of enforced deprivation was 8.1%.

4. Estimating the level of poor housing in Ireland

By far the biggest single factor that determines the likelihood of a dwelling being classed as 'poor housing' is its original date of construction. This is not surprising when we know that it will likely be built to lesser standards of design, have suffered from deterioration over the years, and not always have been repaired, improved and modernised sympathetically or successfully. This does not mean that, by definition, an old home is a poor home, rather that its chances of containing hazards are greater, particularly when compared to a modern home built to more exacting standards.

Table 4.1 shows what happens when the likelihood of a home having an HHSRS Cat 1 hazard found in Northern Ireland is applied to the housing stock of Ireland.

Table 4.1: An estimate of poor condition housing in Ireland, 2016

Dwelling age	% all	No. all*	% Cat 1	No. Cat 1
Pre 1919	8.9	178,000	27.0	48,000
1919-1945	6.9	138,000	16.6	23,000
1946-1980	28.8	577,000	7.6	44,000
1981-2016	55.4	1,110,000	4.0	44,000
Total	**100**	**2,003,000**	**8.0**	**160,000**

**Dwelling numbers include vacant homes. % Cat 1 from NIHCS.*

The rate of poor housing (8%) is estimated to be quite low, when compared with Northern Ireland (9%) England (11%), and Wales (18%), because of its more modern housing stock.

We have used various methods of modelling the Irish 'poor housing' number and it always comes within a range of 132,000 – 180,000 dwellings, with 160,000 being our best estimate.

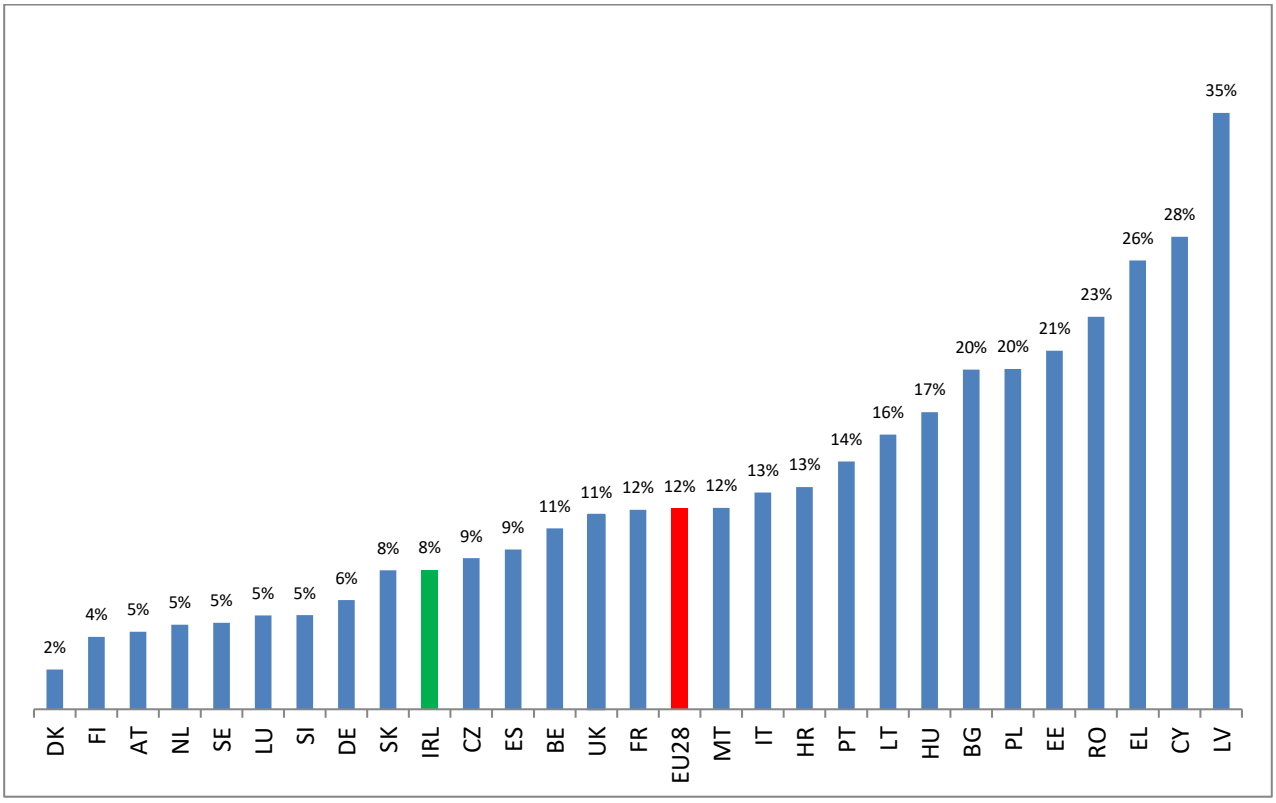
Because the model, above is based on the 2016 Irish Census, it is possible to disaggregate the estimated rate of poor housing by county (Appendix 2). This shows that, while the national level of poor housing is relatively low, there are areas where it is higher than average, due to the age of their dwelling stocks (and associated problems, such as expensive heating, vacancy and disrepair). The county 'poor housing' figures range from 5.7% in suburban Fingal to 10.6% in Dublin City. Of the rural counties, Tipperary is predicted to have the highest rate of poor housing (8.9%).

It is of most concern where older people live in poor housing. Mayo has the highest proportion of its population aged 65 or over, 17.5% (Appendix 3), while Leitrim has both high levels of poor housing (8.7%) and older population (16.9% 65 and over).

Poor housing in Europe

A study undertaken by BRE for Eurofound in 2016 [7] developed a model which combined data from the EQLS with statistical extrapolations from the BRE 'cost of poor housing' research to produce a 'poor housing' variable for EU nations. While not directly comparable with the 'poor housing' variable developed for England, Wales and Northern Ireland, it defines a similar proportion of the housing stock as 'poor' and is good for national comparisons. The estimates (Figure 4.1) suggest that Ireland is likely to have some of the best housing in Europe, mainly due to its young age, but still has 8% which is defined as poor. Denmark has the best quality housing, while Latvia has the worst – a legacy of a housing stock largely comprising pre-cast concrete blocks of flats inherited from the Soviet Union, and traditional wooden cottages.

Figure 4.1: Poor housing by EU nation 2016



Source: The cost of poor housing in Europe

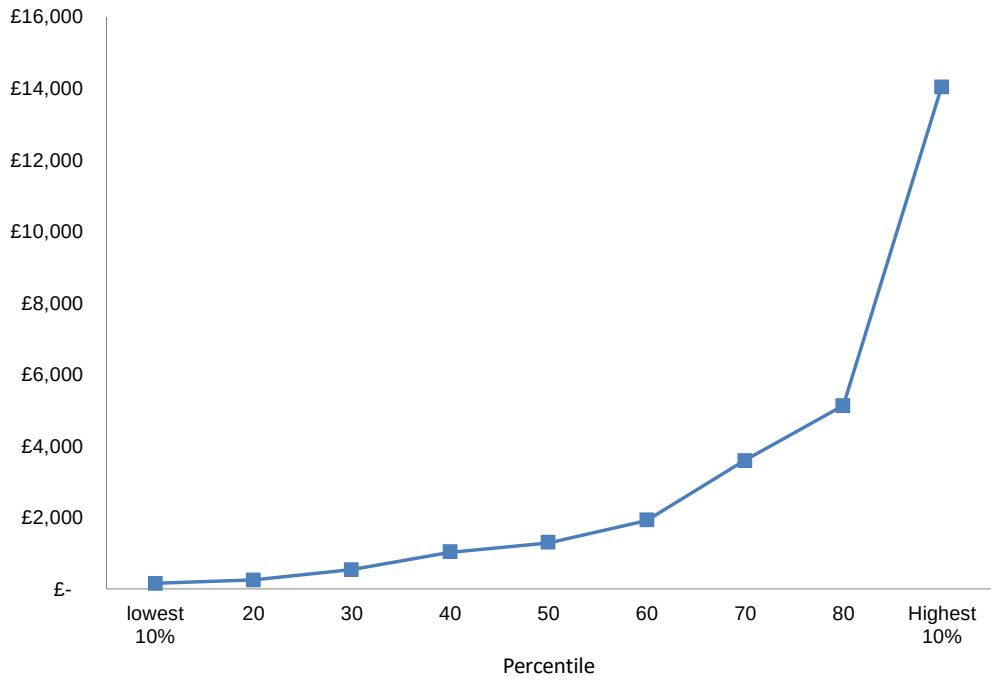
5. Cost to mitigate Category 1 hazards

As part of the NIHCS, surveyors identify remedial works required to reduce hazard risks that are significantly higher than average to an acceptable level – this level usually being the average for the type and age of dwelling. These remedial works are costed up using standard prices.

The2016 NIHCS estimates that the average cost for reducing Category 1 hazards to an acceptable level would be £4,366 [6].

The range of HHSRS repair costs is presented in Figure 5.1. For 20% of homes with Category 1 hazards, it would cost just under £250 to reduce the risk of harm so that it was no worse than the average for the age and type of dwelling. Half of homes would cost £1,300 or less to mitigate the Category 1 hazard. However, costs rise sharply for the highest costing 20% of homes, with some poor housing costing over £10,000 to remedy.

Figure 5.1: Distribution of costs for remedial action on HHSRS Cat 1 hazards, Northern Ireland (2016 prices).



Base: all dwellings with a Category 1 hazard

The costs of work vary by the type of hazard. Table 5.1 shows the average cost per dwelling for the remedial work required to deal with each type of Category 1 hazard. We also need to bear in mind that for many hazards, there is considerable variation around this average or mean value. The median cost, for example, for remedial works to mitigate fire hazards is £3,173; far lower than the mean cost. Figure 5.2 shows the total cost to mitigate each hazard in graphical format.

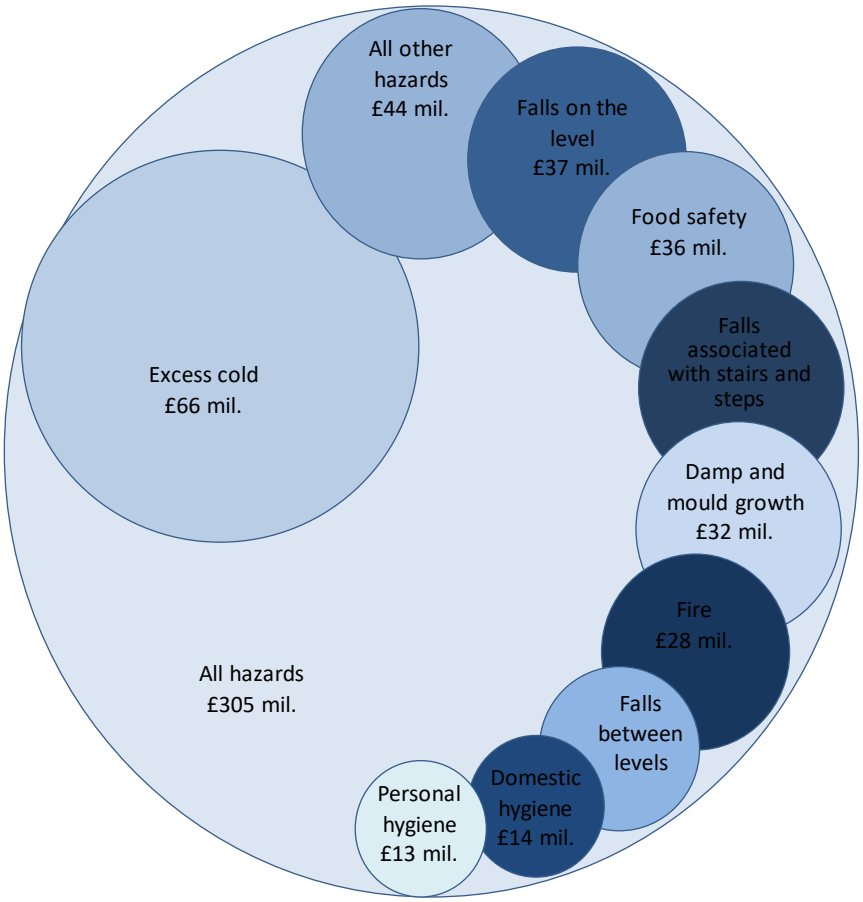
Table 5.1: Average cost per dwelling for remedial work for each type of hazard, Northern Ireland 2016

Hazard	Number of Category 1 Hazards	Average cost per dwelling (£)	Total cost to mitigate hazard (£)
Excess cold	16,029	4,145	66,445,259
Falls on the level	16,491	2,243	36,993,849
Food Safety	7,091	5,114	36,264,648
Falls associated with stairs and steps	25,746	1,266	32,582,162
Damp and mould growth	1,559	20,572	32,079,214
Fire	3,535	8,011	28,320,680
Falls between levels	8,258	2,424	20,013,369
Domestic hygiene, pests and refuse	3,441	4,071	14,009,820
Personal hygiene, sanitation and drainage	8,125	1,613	13,106,456
Electrical hazards	2,000	3,846	7,693,151
Radon (radiation)	5,825	1,294	7,538,521
Lighting	1,795	3,900	6,998,818
Lead	3,422	1,910	6,534,899
Entry by intruders	4,437	1,026	4,552,775
Water supply for domestic purposes	3,734	1,058	3,949,330
Structural collapse and falling elements	489	6,515	3,185,795
Position and operability of amenities (ergonomics)	4,477	570	2,552,489
Carbon monoxide and fuel combustion products	1,216	570	693,105
Uncombusted fuel gas	280	570	159,533
Explosions	280	570	159,533
Hot surfaces and materials	350	120	41,877
Collision and entrapment	-	-	-
Falls associated with baths etc	-	-	-
Crowding and space	-	-	-
Noise	-	-	-
Excess heat	-	-	-
Total with any Category 1 hazard	**69,878**	**4,366**	**305,054,048**

[1] the total sum required to remedy all Category 1 hazards is less than the total number of Category 1 hazards multiplied by the average costs; this is because the modelling avoids the double counting of costs where repair work/energy improvements mitigate more than one hazard.

The total cost of dealing with HHSRS Category 1 hazards in Northern Ireland is estimated to be some £305 million in 2016.

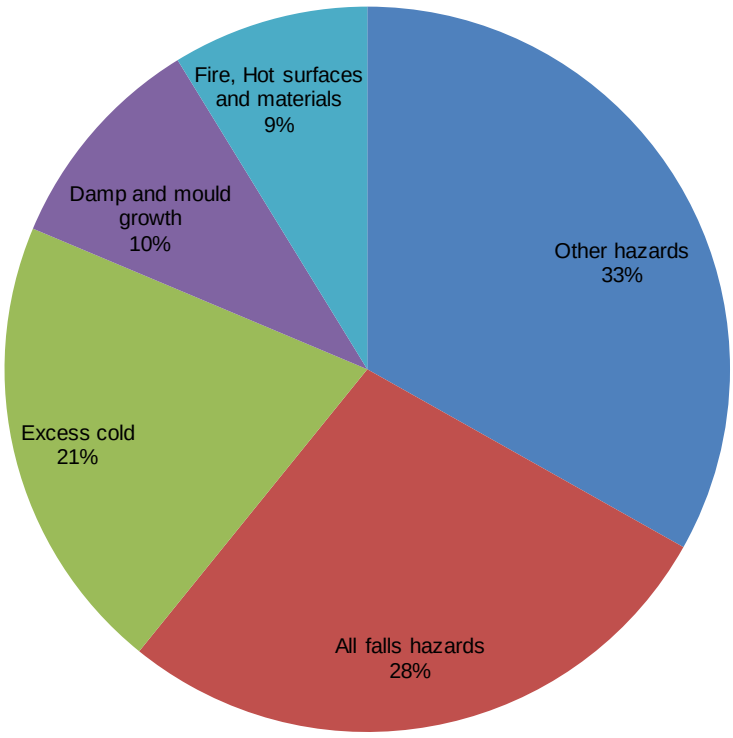
Figure 5.2: Total cost to mitigate all Category 1 hazards, Northern Ireland 2016



Base: all dwellings with a Category 1 hazard

Mitigating the cost of the three Category 1 fall hazards identified in the survey comprises around one quarter of the total costs to make safe. Around one fifth of the estimated total cost of remedial work is required for making cold homes more comfortable, work which includes updating heating systems and providing or improving insulation, Figure 5.3.

Figure 5.3: Distribution of costs to remedy HHSRS Category 1 hazards, Northern Ireland 2016



Base: all dwellings with a Category 1 hazard
Note: Percentages based on total cost to mitigate all Category 1 hazards before double counting is removed

Without any other data to hand, it is fair to assume that the costs to mitigate hazards in Ireland will be similar to those in Northern Ireland. As such, if the above costs are to be used in any modelling, they should be changed from Pounds to Euros at a similar point in time. The exchange rate was 1.365 in January 2016, which is a common point for comparison in this report.

The Eurofound project [7], from a similar period but using a different methodology, estimated that the average cost to rectify problems in poor housing in Ireland was some 4,710 Euros. This included an adjustment factor for Irish building costs, which were lower than those in the United Kingdom at this time.

6. The health cost-benefits of improving poor housing

If you improve a home, making it healthy and safe, this has long term implications for the life chances of occupants and visitors, and benefits to society as a whole.

The benefits of reducing home health and safety hazards include:

1. Direct health benefits to the health sector, occupants and visitors
2. Reduction in cost to the emergency services, following an accident or health incident
3. Wellbeing and mental health benefits
4. A reduction in direct care, aftercare and assistance
5. Improved education and productivity
6. Increased asset value of property
7. Improved rental income of property
8. Saved costs of future retrofitting
9. Savings in energy and carbon emissions
10. Reduction in cost of future interventions, including those of charities
11. Increased social capital
12. Local job opportunitiues and tax revenues

Some of these can be quantified, others cannot but are real social benefits

The benefits accrue year-on-year, while the initial costs are a one-off. The problem is that those who receive the benefits are not always those who pay the up-front costs of delivering the home improvements.

BRE has developed a methology for quantifying the health cost-benefits of housing interventions, using data from the UK national housing surveys, the National Health Service and home accident compensation data from the Transport Research Laboratory [11]. The methodology is presented in The Full Cost of Poor Housing [10] and will not be repeated here.

While it is recognised that other benefits accrue, other than those associated with health, and that these can be substantial, we do not attempt to quantify these in this research.

Benefits to the health services

Every health incident in the home will have a unique outcome. The Full Cost of Poor Housing method summarises and simplifies this to provide representative costs for four types of outcome (Table 6.1).

Table 6.1: Representative cost to the NHS values

Cost value	Class I (£)	Class II (£)	Class III (£)	Class IV (£)
Representative cost (2011)	90,000	30,000	1,800	120

Earlier, we suggested that the total cost of reducing the Category 1 housing hazards in Northern Ireland to an acceptable level (the average for their age and type) was some £305 million. For the hazards that were fully measured through the NIHCS, we have a 'likelihood' score for all homes with a Category 1 hazard, and we have an average likelihood score for the same home for its age and type. Using the

difference between the actual score and the average for the whole stock, ***an estimate for the additional total annual treatment cost to the NHS due to poor housing can be calculated. In 2016 this is estimated to be around £39.5 million per year if the homes are left unimproved*** (Table 6.2). Using this information, ***the direct payback period for all hazards can be calculated at 7.7 years***, if the repairs or improvements are all made 'up front'. The payback period varies greatly according to the type of hazard, with remedial work for Category 1 falls on stairs, excess cold and entry by intruders estimated to deliver the fastest payback on investment.

The figures above only relate to Category 1 hazards. It is recognised that the many homes with less severe hazards will also incur costs, although the long-term impact on health and society will be considerably less.

Health cost-benefits to society

The cost-benefits, above, represent just the first-year treatment costs to the NHS for hazards that are left unimproved but, in reality, once a patient has been successfully treated by the NHS for a home related accident or incident, that will not be the end of it. There will be aftercare that, in some cases, can go on for the remainder of someone's life. There may be occupational therapy and physiotherapy. In some cases the person may not be able to return home but may be taken into care, or use up a valuable hospital space. A person may be confined to a wheelchair which will involve special home adaptions and assistance. These long term costs may be far higher than the initial NHS treatment, particularly if the person is young.

To address this BRE has applied a tried-and-tested formula developed by the Transport Research Laboratory which evaluates the costs of both fatal and non-fatal transport related injuries; the costs include human costs (pain, grief and suffering), indirect economic costs as well as direct medical costs. TRL have also conducted research for the Royal Society for the Protection from Accidents (RoSPA) to value the impact of home accidents using these costs.

Using this approach, the estimated total cost to society of the poor housing in Northern Ireland is £401 million per annum (Table 6.2)***. This estimate suggests, therefore, that the proportion of costs to the NHS is nearer 10% of societal costs of all poor housing in Northern Ireland.***

When considering the potential benefit to society of mitigating these hazards, excess cold dominates, with about two thirds of all the potential savings.

Using this information, ***the direct payback period to society for all hazards can be calculated at 0.8 years***, if the repairs or improvements are all made 'up front'. This payback period varies according to the type of hazard, ranging from less than one year to over 10 years. As with the potential savings to the NHS, it must be stressed that there is a very large amount of uncertainty around these estimates since calculations relating to cost benefits and payback periods are very sensitive to the mix of hazards present.

Table 6.2: Summary of costs and benefits, with Category 1 hazards ordered by total cost to repair, Northern Ireland 2016

Hazard	Number of Category 1 Hazards	Average cost per dwelling (£)	Total cost to mitigate hazard (£)	Savings to the NHS per annum if hazard mitigated (£)	Payback (years)	Savings to society per annum if hazard mitigated (£)	Societal payback (years)
Excess cold	16,029	4,145	66,445,259	14,934,757	4	265,943,105	0.3
Falls on the level	16,491	2,243	36,993,849	6,278,094	6	69,197,566	0.5
Food Safety	7,091	5,114	36,264,648	822,093	44	14,214,764	2.6
Falls associated with stairs and steps	25,746	1,266	32,582,162	8,578,037	4	11,139,241	2.9
Damp and mould growth	1,559	20,572	32,079,214	455,439	70	3,085,490	10.4
Fire	3,535	8,011	28,320,680	757,795	37	2,505,651	11.3
Falls between levels	8,258	2,424	20,013,369	2,076,890	10	2,185,291	9.2
Domestic hygiene, pests and refuse	3,441	4,071	14,009,820	412,817	34	13,070,369	1.1
Personal hygiene, sanitation and drainage	8,125	1,613	13,106,456	942,610	14	1,380,954	9.5
Electrical hazards	2,000	3,846	7,693,151	267,471	29	8,949,004	0.9
Radon (radiation)	5,825	1,294	7,538,521	488,762	15	1,122,632	6.7
Lighting	1,795	3,900	6,998,818	205,587	34	1,136,269	6.2
Lead	3,422	1,910	6,534,899	423,997	15	1,650,165	4
Entry by intruders	4,437	1,026	4,552,775	1,236,725	4	1,028,751	4.4
Water supply for domestic purposes	3,734	1,058	3,949,330	462,690	9	808,397	4.9
Structural collapse and falling elements	489	6,515	3,185,795	42,069	76	1,232,005	2.6
Position and operability of amenities (ergonomics)	4,477	570	2,552,489	537,986	5	992,436	2.6
Carbon monoxide and fuel combustion products	1,216	570	693,105	118,064	6	278,250	2.5
Uncombusted fuel gas	280	570	159,533	26,495	6	454,480	0.4
Explosions	280	570	159,533	25,124	6	257,021	0.6
Hot surfaces and materials	350	120	41,877	427,855	0	468,003	0.1
Collision and entrapment	-	-	-	-	-	-	-
Falls associated with baths etc	-	-	-	-	-	-	-
Crowding and space	-	-	-	-	-	-	-
Noise	-	-	-	-	-	-	-
Excess heat	-	-	-	-	-	-	-
Total with any Category 1 hazard	**69,878**	**4,366**	**305,054,048**	**39,521,357**	**8**	**401,099,844**	**0.8**

Estimating the health cost-benefit of dealing with poor housing in Ireland

If the 2,003,000 homes in Ireland perform like the 780,000 homes in Northern Ireland, we can apply the NIHCS based findings to produce the following Ireland estimates:

- 160,000 = poor housing
- £4,366 = average cost to improve
- £699,000,000 = total cost to improve
- £90,780,000 = first year cost-savings to NHS
- £921,417,000 = full societal health costs

These are UK figures in £ at 2016 prices

If we apply the UK pounds to Euros exchange rate (1.365, Jan 2016) to produce Irish 2016 costs, we get:

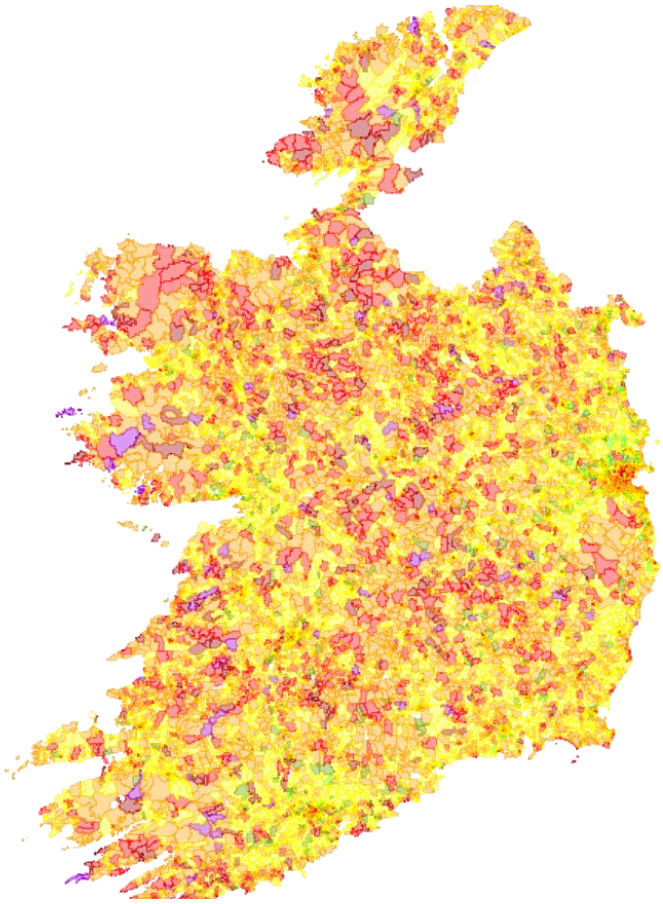
- 160,000 = poor housing
- 5,960 Euros = average cost to improve
- 954,000,000 Euros = total cost to improve
- 123,915,000 Euros = first year cost-savings to health services
- 1,257,737,000 Euros = full societal health costs

The final (full societal health costs) figure of 1.258 billion Euros is similar to the estimate from 'the Cost of Poor Housing in Europe' (1.235 billion Euros), which used a different methodology – one that was based on linking self-reported Irish housing conditions data from the EQLS to the HHSRS.

It is a fair assumption that poor housing conditions are costing Irish society over one billion Euros per year due to the health-cost implications alone.

These estimates use a top-down model which borrows factors from the housing stock of Northern Ireland to produce a national figure for Ireland. It would be is possible to disaggregate these cost estimates further by extrapolating them down to county level through the 2016 Irish Census (as for poor housing, Appendix 2). Beyond this, ***we recommend that a bespoke national model is built from the bottom up using local information***, perhaps including that from BER's (Building Energy Ratings), Figure 6.1. Such a model would be most useful in validating our estimates and in helping to target policies and action towards the areas which have the poorest housing.

Figure 6.1: Building Energy Rating distribution, Ireland



Key: BER Band: A; B; C; D; E; F; G

Source: Sustainable Energy Ireland/ESRI

Using the model in practice

The Cost of Poor Housing model, used in the cost-benefit national estimates above, can also be used at the individual dwelling and scheme level. The example at Figure 6.2 is taken from the Cost of Poor Housing in Wales [12] and demonstrates that an intervention to provide an elderly household in fuel poverty with improved heating and insulation has multiple benefits, not least to her own health and life chances.

Figure 6.2: Case study example of the cost-benefits of housing improvement

This example from Wales [9] shows the impact of poor housing on one household and some of the cost-benefits of improving the home.

This pre1919 terraced house is occupied by a vulnerable older lady owner whose only income is the state pension. The home has been partially improved over the years but is still too expensive for the occupant to heat effectively. It represents a HHSRS Category 1 excess cold hazard and the household is in fuel poverty.

A modest range of energy improvements is suggested to bring this home up to the average energy efficiency for the age and type of the dwelling. If the household takes advantage of the heating improvements, the HHSRS cold risk will be minimised and the household will be taken out of fuel poverty.

The chances of the occupant ending up in hospital requiring treatment will be reduced substantially.

If the improvement scheme was to include full insulation to the solid walls and floors, plus solar water heating, the costs of improvement would go up to £23,766 but with no additional health benefits over the basic modelled energy improvements. However, there would be additional fuel cost and carbon emission savings.

	Pre-improvement		**Post-improvement**
Walls	Solid, uninsulated		Not improved
Ground floor	Solid, uninsulated		Not improved
Loft insulation	50mm		Topped up to 270mm
Double-glazing	Partial		Full
Space heating	Gas fire with back boiler		Condensing boiler
Heating controls	Boiler controls only		Room thermostat, programmer and TRVs
Hot water cylinder	Un-insulated, no thermostat		80mm jacket and thermostat fitted
Low energy lights	Partial		Full
Solar water heating	No		No
Cost of upgrade (WHCS)	£0		£4,766
Energy efficiency (SAP)	21		57
Annual fuel cost	£1,770		£895
Household in Fuel Poverty	Yes		No
CO2 emissions	8,430		3,960
HHSRS excess cold (band)	A		E
Cost savings to NHS pa	-		£730
Payback to NHS (years)	-		7
Market value increase	£0		£5,000

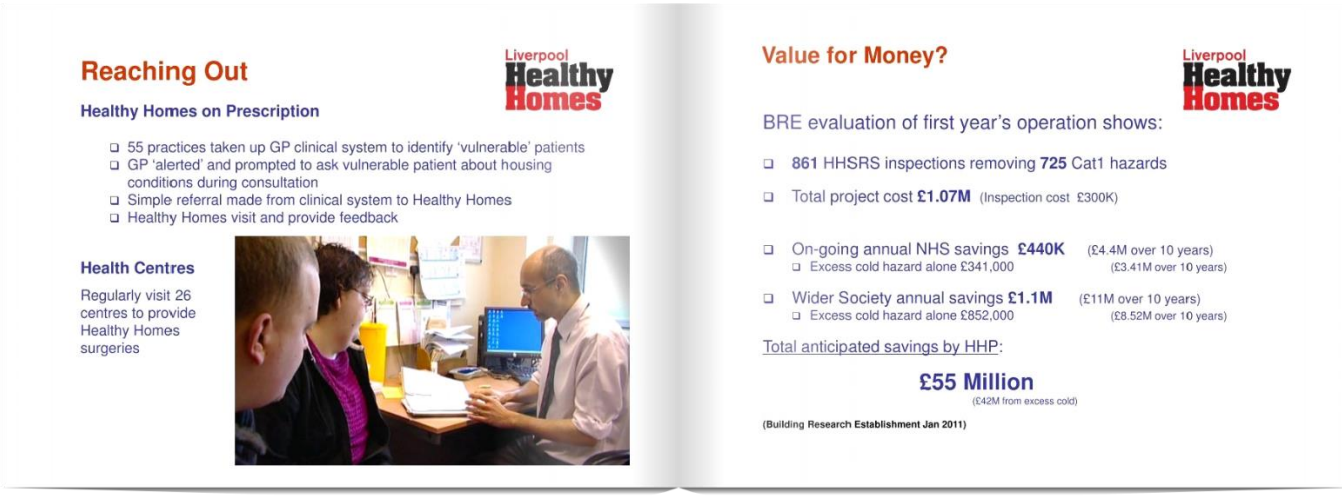
7. What do we do with the information

The HHSRS is used by English and Welsh local authorities for housing enforcement purposes – typically in dealing with complaints against landlords. It provides a scientific and statistical basis on which to judge whether a poor-quality home impacts on the health and safety of tenants. It provides a level of risk and scale to decision making.

At a strategic level, sample surveys that apply the HHSRS are used by national and local governments to identify types and areas of poor housing and to target funding to improve it. In Northern Ireland it is used to inform and supplement the Fitness Standard. In the USA it is used to support urban renewal programmes.

It is also used by local authorities to inform their housing improvement policies, such as the Liverpool Healthy Homes initiative [13]. BRE has developed a tool (the Healthy Housing Cost Calculator, or HHCC), which calculates the health cost-benefit of each intervention entered onto the system by the deliverer, which many English local authorities use to demonstrate the value of their interventions (Figure 7.1).

Figure 7.1: Excerpt from Liverpool Healthy Homes initiative presentation



Charities and other organisations, in particular those that support the vulnerable elderly such the Centre for Ageing Better [16], have picked up on HHSRS based 'Cost of Poor Housing' methodology as evidence in their lobbying for investment in housing.

But the science behind the HHSRS has a wider use. It can be used to educate landlords, housing and health professionals, and households themselves, on how to make homes healthy and safe. Organisations, such as Public Health Wales (Figure 7.2) have produced simple explanatory infographics to get across their messages. Care and Repair (Figure, 7.3) have drawn on the HHSRS to produce guidance for households on how to live more safely in their homes.

Figure 7.2: Sample infographics produced by Public Health Wales NHS Trust [14]

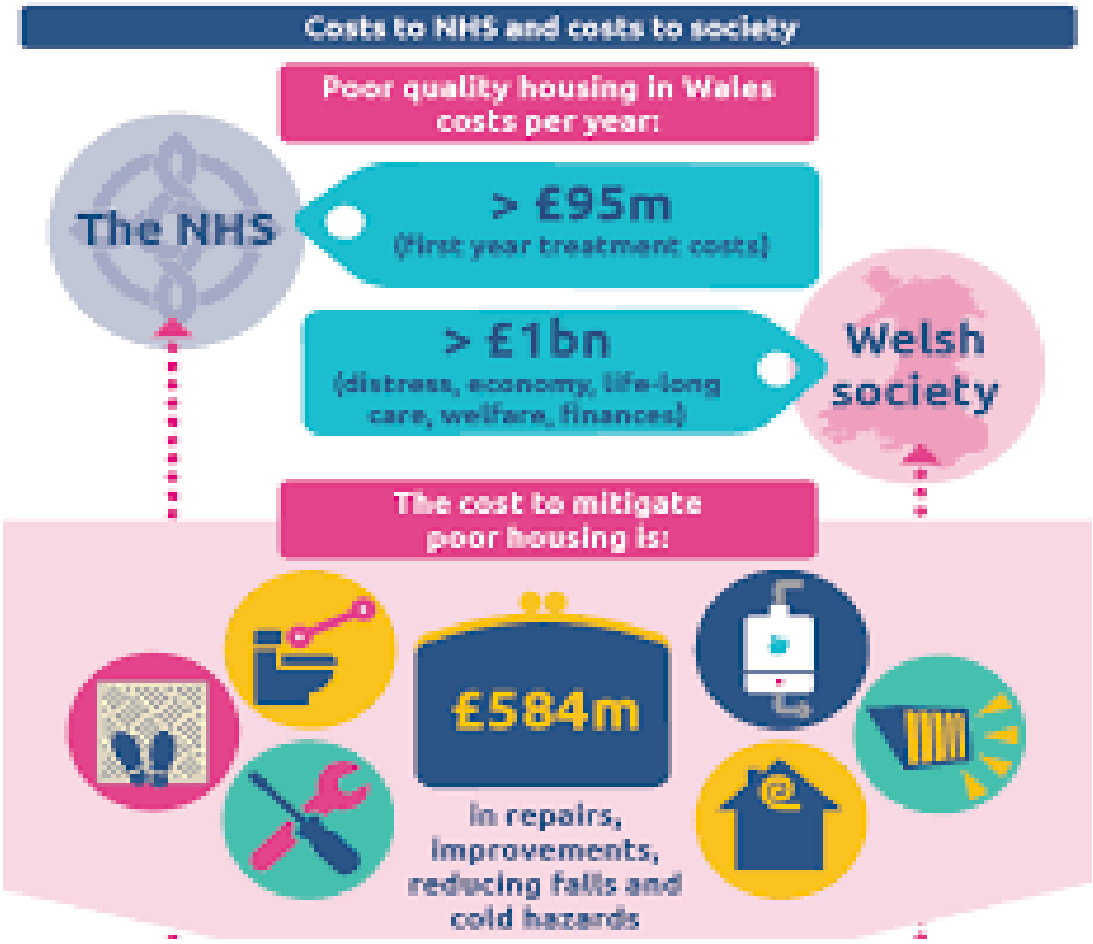
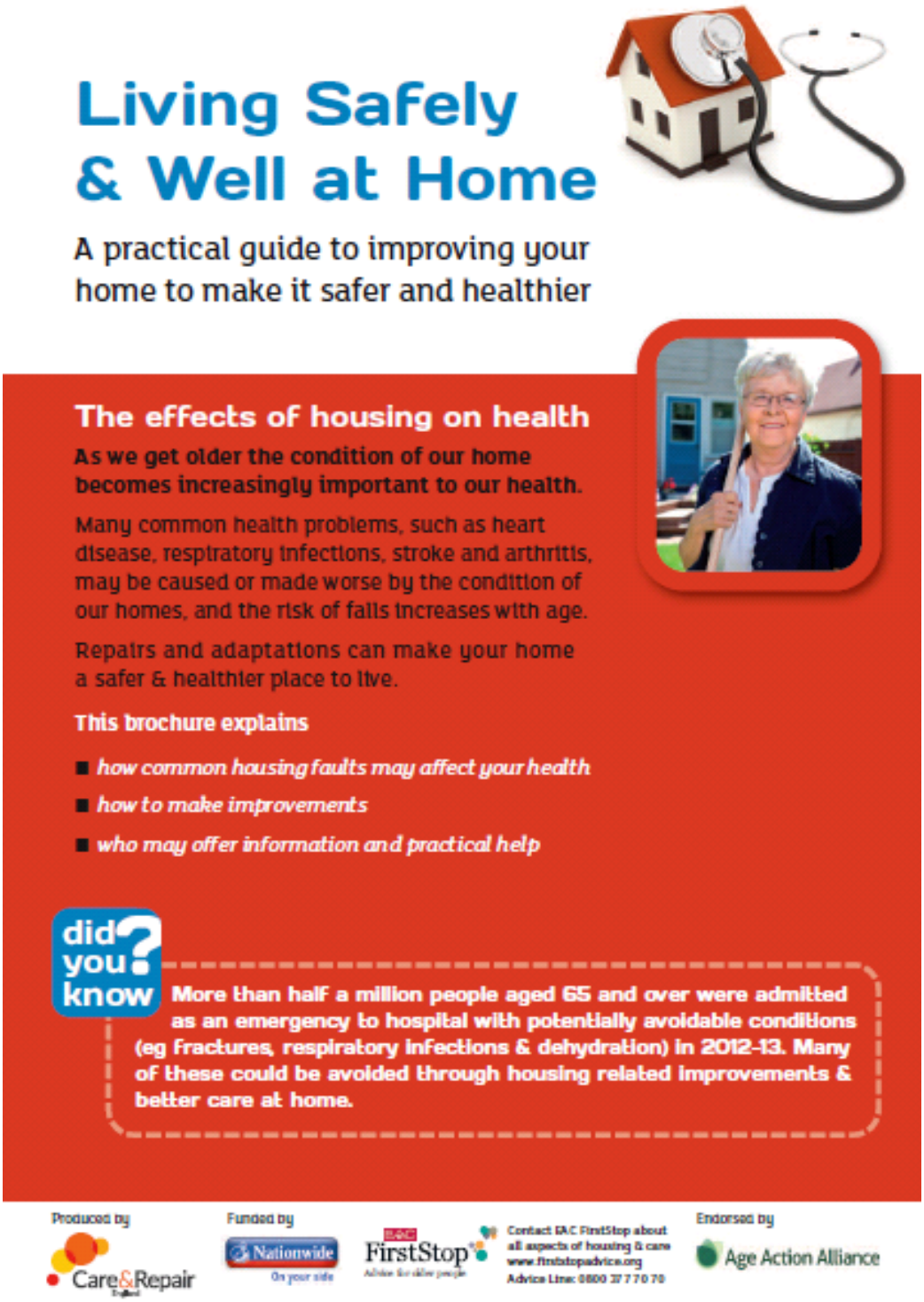


Figure 7.3: Front page of Care and Repair leaflet on Living Safely and Well at Home [15]



Living Safely & Well at Home

A practical guide to improving your home to make it safer and healthier

The effects of housing on health

As we get older the condition of our home becomes increasingly important to our health.

Many common health problems, such as heart disease, respiratory infections, stroke and arthritis, may be caused or made worse by the condition of our homes, and the risk of falls increases with age.

Repairs and adaptations can make your home a safer & healthier place to live.

This brochure explains

- *how common housing faults may affect your health*
- *how to make improvements*
- *who may offer information and practical help*

did you know?

More than half a million people aged 65 and over were admitted as an emergency to hospital with potentially avoidable conditions (eg fractures, respiratory infections & dehydration) in 2012-13. Many of these could be avoided through housing related improvements & better care at home.

Produced by Care&Repair England

Funded by Nationwide On your side

FirstStop Advice for older people

Contact EAC FirstStop about all aspects of housing & care www.firststopadvice.org Advice Line: 0800 377 7070

Endorsed by Age Action Alliance

8. Conclusion and recommendations

Conclusions

The type and composition of the housing stock of Ireland is most similar to that of Northern Ireland. It is likely that housing conditions in Ireland will follow a similar pattern to those in Northern Ireland, which has a current national housing survey to monitor these (NIHCS).

A model developed by BRE to extrapolate survey results from the 2016 NIHCS to Ireland suggests that around 160,000 (8%) of Irish homes are likely to present a serious health and safety risk to their occupants (and visitors). This compares with 9% in Northern Ireland, 11% in England and 18% in Wales.

Ireland's apparent better conditions are largely driven by the age of its housing, which is some of the newest in Europe.

The most common severe home hazards likely to be found in Ireland are those relating to cold and home accidents – particularly falls. These hazards are over-represented in the homes of older households – the very people who are most affected by them. They are, generally, not expensive to rectify compared to the long-term cost to the health services and society if they are ignored.

It is estimated that the total health impact to society of leaving these hazards un-rectified is costing Ireland some £1.25 billion Euros a year (at 2016 prices) to the health and care services, and in distress and lost opportunities to victims. This figure broadly corresponds with an estimate produced as part of a pan-European study undertaken in 2016, using self-reported data from Irish households.

Improving poor housing has multiple benefits, beyond those that just relate to the health of their occupants. These include reduced energy costs and carbon emissions, higher residual asset values, and local job creation opportunities. Everybody wins!

The findings of this study might be used towards the development of enhanced information and simple guidance for older people in relation to the safety of their homes (covering issues such as damp/mould, fall hazards, heating costs and temperatures, etc) and developing resources that can be used to support Irish local authorities in their preparation and maintenance of housing for older people.

It is recognised that real housing conditions in Ireland may not follow the pattern predicted from Northern Ireland in this scoping study. Ireland specific problems may have been overlooked, or over-played. But, in lieu of a current bespoke Irish national housing survey, it represents a useful starting point for discussion, validation and development.

Recommendations

We recommend that:

A pilot survey is designed and delivered to validate the estimates in this research, and to demonstrate the wider value of housing surveys to inform policies in Ireland.

To reduce costs, use a tried and tested methodology and tap into a trained surveying force, we recommend undertaking the pilot surveys in counties bordering Northern Ireland in 2021/22, so that surveyors currently working on the NIHCS can be 'borrowed'. Louth, Cavan and Donegal have been suggested as possible pilot counties.

These physical inspections might be linked to social surveys at a sample of the same homes so that the households' views of the health and safety of their homes might be compared with actual conditions as assessed by the surveyors.

Depending on the success of this scoping study and a pilot survey, we would expect to recommend that the Irish Government undertakes a regular national housing survey to monitor housing conditions and its own policies.

Regardless of whether this stream of work progresses beyond the scoping stage, we recommend that the learning around the relationship between housing and health in Ireland is used to inform guidance to households on how to live healthily and safely in their homes, and to provide local authorities, landlords, occupational health professionals and carers with the tools to provide assistance to vulnerable people in their jurisdictions.

This scoping study reports at national level and it is recognised that there are considerable local differences in the distribution of unhealthy housing across Ireland. We recommend that a comprehensive model is developed, which uses more Ireland specific data which can be broken down to county level, and perhaps to local level.

The HHSRS is used as the basis for system to identify and prioritise rectifying health hazards in the home in Ireland.

References

1. Piddington J, Nicol S, Garrett H, Custard M. The Housing Stock of the United Kingdom (2020). BRE Trust. Watford.
2. ODPM (2004). Housing Health and Safety Rating System – Guidance (Version 2). MHCLG. London
3. Housing Executive (2016) Northern Ireland House Condition Survey: Main Report. Belfast.
4. Department of Housing and Urban Development. Healthy Home Rating System – Operating Guidance. Washington. USA.
5. Braubach M, Jacobs D and Ormandy D (2011). Environmental burden of disease associated with inadequate housing. WHO Europe. Copenhagen.
6. Housing Executive (2016). The Cost of Poor Housing in Northern Ireland. Belfast.
7. Nicol S, Roys M, Ormandy D, Ezratty V. The Cost of Poor Housing in the European Union (2016). BRE Trust. Watford.
8. Watson D, Williams J. (2003). Irish National Survey of Housing Quality. The Economic and Social Research Institute. Dublin.
9. Telfour-Barnard et al. (2017). Measuring the effect of housing quality interventions: the case of New Zealand. Int J Environ Res Public Health, Nov 2017.
10. Roys M, Nicol S, Garrett H and Margoles S (2016), The full cost of poor housing, BRE FB 81. Bracknell, IHS BRE Press.
11. Walter LK. Re-valuation of Home Accidents (2010). TRL Published Project Report PPR483. Crowthorne.
12. Nicol S, Garrett H (2019) The cost of poor housing in Wales. BRE Trust. Watford.
13. Watson I, Mackenzie F, Woodfine l, Azam S, (2019). Making a difference. Housing and Health: A case for investment. Public Health Wales NHS Trust.
14. Watson I, (2011) Liverpool Healthy Homes Programme, presentation. Liverpool City Council.
15. Care and Repair (2016). Living safely and well at home: A practical guide to improving your home to make it healthier and safer.
16. Centre for Ageing Better (2020). Home and dry: The need for decent homes in later life. Ageing-better.org.uk.
17. Housing Europe (2017). The state of housing in the EU. Brussels.

Appendix 1: Locations of dwelling types in Figure 2.2

Thatched cottage, co Galway	Victorian terrace in disrepair, co Wexford	Georgian town house, Liverpool (but could be Dublin or Belfast!)
Inter-war semi-detached, Dublin	New social housing, co Tipperary	Council built tower block, Belfast
Walk-up Housing Executive flats, Newry	Older end terrace, co Cork	Modern bungalow, co Down

Appendix 2: Age and level of poor housing by county, 2016 Ireland Census

		age profile of occupied dwellings				
		pre 1919	1919 to 1945	1946 to 1980	post 1980	% Poor housing
County and City	Carlow	10.5%	6.4%	23.9%	59.2%	8.1%
	Cavan	10.2%	6.0%	20.6%	63.2%	7.8%
	Clare	9.0%	5.8%	27.2%	57.9%	7.8%
	Cork City	13.4%	11.3%	43.2%	32.1%	10.1%
	Cork County	11.8%	5.7%	22.6%	60.0%	8.2%
	Donegal	8.4%	4.6%	22.8%	64.2%	7.3%
	Dublin City	14.8%	14.3%	37.0%	33.8%	10.6%
	Dún Laoghaire-Rathdown	6.5%	6.7%	43.9%	42.9%	7.9%
	Fingal	2.3%	1.9%	26.2%	69.6%	5.7%
	Galway City	2.3%	3.8%	26.5%	67.3%	6.0%
	Galway County	7.1%	6.7%	23.4%	62.9%	7.3%
	Kerry	7.8%	6.8%	27.7%	57.7%	7.6%
	Kildare	4.2%	3.5%	24.2%	68.1%	6.3%
	Kilkenny	12.1%	6.3%	24.9%	56.7%	8.5%
	Laois	10.0%	5.1%	20.0%	65.0%	7.6%
	Leitrim	13.2%	7.5%	18.8%	60.5%	8.7%
	Limerick City and County	9.1%	8.0%	30.0%	52.9%	8.2%
	Longford	9.4%	5.8%	23.3%	61.6%	7.7%
	Louth	7.5%	7.3%	30.4%	54.8%	7.7%
	Mayo	6.8%	9.3%	24.7%	59.2%	7.6%
	Meath	6.3%	4.6%	23.2%	65.9%	6.8%
	Monaghan	10.9%	7.5%	26.5%	55.1%	8.4%
	Offaly	9.2%	8.2%	26.5%	56.1%	8.1%
	Roscommon	9.9%	8.2%	23.8%	58.1%	8.1%
	Sligo	9.0%	8.5%	24.5%	58.0%	8.0%
	South Dublin	0.9%	1.6%	43.3%	54.2%	6.0%
	Tipperary	12.6%	8.6%	26.9%	51.9%	8.9%
	Waterford City and County	11.1%	6.5%	27.2%	55.1%	8.4%
	Westmeath	8.8%	6.1%	25.7%	59.5%	7.7%
	Wexford	10.6%	6.1%	20.6%	62.7%	7.9%
	Wicklow	10.1%	6.7%	27.9%	55.3%	8.2%
Total		8.9%	6.9%	28.8%	55.4%	8.0%

Appendix 3: Age of population by county, 2016 Ireland Census

County and City * population age band Crosstabulation

% within County and City

		population age band					Total
		0 - 19 years	20 - 54 years	55 - 64 years	65 - 74 years	75 years and over	
County and City	Carlow	28.6%	47.7%	10.7%	7.6%	5.3%	100.0%
	Cavan	30.0%	45.3%	11.0%	7.9%	5.8%	100.0%
	Clare	28.2%	45.1%	11.8%	9.0%	5.8%	100.0%
	Cork City	20.6%	53.0%	10.7%	8.5%	7.2%	100.0%
	Cork County	29.4%	46.9%	10.7%	7.7%	5.3%	100.0%
	Donegal	28.8%	44.0%	11.4%	9.2%	6.5%	100.0%
	Dublin City	20.2%	57.3%	9.5%	6.9%	6.2%	100.0%
	Dún Laoghaire-Rathdown	24.9%	48.4%	10.8%	8.4%	7.5%	100.0%
	Fingal	30.5%	51.5%	8.9%	5.9%	3.2%	100.0%
	Galway City	23.2%	56.4%	9.2%	6.6%	4.6%	100.0%
	Galway County	29.1%	44.8%	11.6%	8.4%	6.2%	100.0%
	Kerry	25.7%	44.6%	12.8%	10.2%	6.7%	100.0%
	Kildare	31.0%	49.4%	9.6%	6.4%	3.5%	100.0%
	Kilkenny	28.5%	45.9%	11.4%	8.3%	5.8%	100.0%
	Laois	30.9%	47.7%	10.1%	6.8%	4.5%	100.0%
	Leitrim	27.5%	42.8%	12.8%	9.6%	7.3%	100.0%
	Limerick City and County	27.1%	47.7%	11.1%	8.4%	5.7%	100.0%
	Longford	29.6%	44.9%	11.2%	8.6%	5.7%	100.0%
	Louth	29.6%	47.8%	10.1%	7.4%	5.0%	100.0%
	Mayo	26.7%	42.7%	13.0%	10.2%	7.3%	100.0%
	Meath	31.7%	48.0%	9.6%	6.6%	4.0%	100.0%
	Monaghan	29.3%	45.6%	11.2%	8.1%	5.9%	100.0%
	Offaly	29.7%	45.8%	11.0%	7.9%	5.7%	100.0%
	Roscommon	27.4%	43.3%	12.7%	9.3%	7.3%	100.0%
	Sligo	27.1%	44.4%	12.4%	9.5%	6.8%	100.0%
	South Dublin	29.5%	49.2%	10.2%	7.1%	4.0%	100.0%
	Tipperary	27.9%	45.0%	11.8%	8.8%	6.5%	100.0%
	Waterford City and County	27.7%	46.0%	11.3%	8.8%	6.2%	100.0%
	Westmeath	29.0%	47.5%	10.7%	7.5%	5.3%	100.0%
	Wexford	28.5%	45.4%	11.4%	8.7%	6.0%	100.0%
	Wicklow	29.0%	47.1%	10.9%	8.0%	5.0%	100.0%
Total		27.5%	48.4%	10.7%	7.8%	5.5%	100.0%